

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
McGuire Nuclear Station - Unit 2DOCKET NUMBER (2)  
0 5 0 0 0 3 7 0PAGE (3)  
1 OF 0 3TITLE (4)  
Feedwater Isolation on High Steam Generator LevelEVENT DATE (5)  
MONTH DAY YEAR  
1 0 2 6 8 5 8 5  
LER NUMBER (6)  
YEAR SEQUENTIAL NUMBER REVISION NUMBER  
0 2 8 0 0 1  
REPORT DATE (7)  
MONTH DAY YEAR  
1 2 5 8 5  
OTHER FACILITIES INVOLVED (8)  
FACILITY NAMES  
DOCKET NUMBER(S)  
0 5 0 0 0 0OPERATING MODE (9)  
3  
POWER LEVEL (10)  
01010  
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)  
20.402(b) 20.406(c) X 50.73(a)(2)(iv) 73.71(b)  
20.406(a)(1)(i) 50.36(a)(1) 50.73(a)(2)(v) 73.71(c)  
20.406(a)(1)(ii) 50.35(a)(2) 50.73(a)(2)(vii) OTHER (Specify in Abstract below and in Text, NRC Form 366A)  
20.406(a)(1)(iii) 50.73(a)(2)(i) 50.73(a)(2)(viii)(A)  
20.406(a)(1)(iv) 50.73(a)(2)(ii) 50.73(a)(2)(viii)(B)  
20.406(a)(1)(v) 50.73(a)(2)(iii) 50.73(a)(2)(ix)LICENSEE CONTACT FOR THIS LER (12)  
NAME  
Jerry Day, Licensing  
TELEPHONE NUMBER  
AREA CODE  
7 0 1 4 3 1 7 1 3 1 7 1 0 3 1 3COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)  
CAUSE SYSTEM COMPONENT MANUF. TURER REPORTABLE TO NPROS  
CAUSE SYSTEM COMPONENT MANUF. TURER REPORTABLE TO NPROSSUPPLEMENTAL REPORT EXPECTED (14)  
YES (If yes, complete EXPECTED SUBMISSION DATE) XX NO  
EXPECTED SUBMISSION DATE (15)  
MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On October 26, 1985, at 0717, the feedwater level in steam generator (S/G) 2C rose to the P-14 setpoint of 82%. Because the unit was in Mode 3 at 0% power, the P-14 signal caused the operating feedwater (CF) pump to trip and the feedwater control valves and feedwater control bypass valves to close. The motor driven auxiliary feedwater (CA) pumps were started due to a "Loss Of Both Main Feedwater Pumps" signal. Control room personnel took appropriate action to lower the level in the 3/Gs and return the CF pump to service.

The feedwater control valves were leaking causing the rise in the S/G. A contributing Personnel Error is also assigned because the Control Room Operator did not take appropriate action to eliminate the water rise in the S/G prior to the isolation. After the isolation, appropriate actions were taken to reduce S/G level. The signal was properly initiated and all components responded properly to the signal.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
McGuire Nuclear Station - Unit 2	0 5 0 0 0 3 7 0	8 5	- 0 2 8	- 0 0	0 2	OF 0	3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

On October 26, 1985, at 0717, the feedwater level in steam generator (S/G) 2C rose to the P-14 setpoint of 82%. Because the unit was in Mode 3 at 0% power, the P-14 signal caused the operating feedwater (CF) pump to trip and the feedwater control valves and feedwater control bypass valves to close. The motor driven auxiliary feedwater (CA) pumps were started due to a "Loss Of Both Main Feedwater Pumps" signal. Control room personnel took appropriate action to lower the level in the S/Gs and return the CF pump to service.

The feedwater control valves were leaking causing the rise in the S/G. Personnel Error is also assigned because the Control Room Operator did not take appropriate action to eliminate the water rise in the S/G prior to the feedwater isolation.

Background

The S/G level deviation alarm is actuated when the S/G water level deviates from the level program setpoint  $\pm 5\%$ . The program setpoint changes linearly from 38% S/G water level at 0% power to 66% S/G water level at 100% power.

The S/G Hi-Hi level alarm is actuated at the same setpoint that the P-14 signal is actuated  $\sim 82\%$  S/G water level. The Hi-Hi level alarm is just an annunciator. The P-14 signal initiates a turbine trip, feedwater isolation, and CF pump trips. There are no alarms between the S/G level deviation alarm and the Hi-Hi level/P-14 alarm.

Description of Event:

On October 26, 1985, at approximately 0500, unit recovery began from a reactor trip earlier that morning. Due to minor problems after the trip, unit recovery began with CA supplying feedwater to the S/Gs instead of CF. The S/G level deviation alarm was already annunciated and had been since the CA pumps came on after the trip.

At approximately 0655, S/G feedwater flow was swapped from CA to CF. The S/G level deviation alarm was still in alarm. The feedwater control valves were closed and the feedwater control isolation valves were open. Feedwater flow was directed through the feedwater control bypass valves, which were approximately 5% open.

Operator A noticed that the water level in S/G "C" had risen to approximately 60% and tried to close the feedwater control valve tighter to stop leakage through that valve. He also closed the control bypass valve. However, because shift turnover was in progress, he did not notice that the water level in S/G "C" was still rising. There are no Hi level alarms for the S/Gs. So, at 0717, the level in S/G "C" rose to 82% and a P-14 signal was generated. Because the unit was at 0% power, a feedwater isolation occurred and the only operating CF pump (2B) tripped automatically. The motor-driven CA pumps automatically started with a "Loss of Both Main Feedwater Pumps" signal. The "Loss of Main Feedwater" procedure was also implemented.

Operator A ensured that all feedwater control and bypass valves were closed. He then closed all the feedwater control isolation valves.

Operator B opened three steam dump to the condenser valves to reduce water level in the S/Gs. When the S/G "C" water level fell to well below the P-14 setpoint, the P-14 signal was reset. The CF pump 2B was then returned to service and the CA pumps were secured. The S/G blowdown valves were then opened for chemistry reasons and to further promote level reduction in the S/Gs.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/86

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

The "Loss of Main Feedwater" procedure was completed at 0910 and unit startup began at approximately 1030.

Most of the main feedwater control valves leak and always have. These feedwater control valves are large (18 inch) throttle valves which are not designed to stop flow; hence the isolation valves on either side. During startup when feedwater flow is routed through the bypass valves, operators usually have to close the feedwater control isolation valves to prevent control valve leakage from overfilling the S/Gs. However, not all operators are aware of this problem as this incident shows. Operator A assumed that by trying to further close the feedwater control valve leakage would be stopped.

A search of the Nuclear Plant Reliability Data System (NPRDS) revealed that three utilities have had problems with leaking main feedwater control valves. Most of the problems were due to normal wear.

A review of past incident reports indicates that this is an isolated event.

CORRECTIVE ACTION:

Subsequent: The "Loss of Main Feedwater" procedure was implemented.

Operator A ensured all main feedwater control and bypass valves were closed.

Operator A closed all main feedwater control isolation valves.

Steam dump to condenser valves were opened to enhance S/G water level reduction.

The P-14 signal was reset.

The S/G blowdown valves were opened to further enhance S/G water level reduction.

Planned: The possibility of the main feedwater control valves leaking and the precautions necessary will be covered in operator requalification training.

SAFETY ANALYSIS:

The P-14 signal properly provided the required S/G high water level protection. If the unit had been up in power, a turbine trip would have been generated. However because the unit was in Mode 3 at 0% power, the P-14 signal properly initiated feedwater isolation and tripped the operating main feedwater pump. The motor driven CA pumps also properly actuated on a "Loss Of Both Main Feedwater Pumps" signal as designed.

The health and safety of the public were not affected by this incident.

DUKE POWER COMPANY

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HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
(704) 373-4531

November 25, 1985

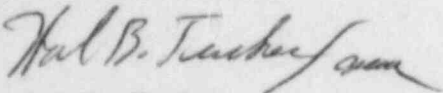
Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: McGuire Nuclear Station, Unit 2  
Docket No. 50-370  
LER 370/85-28

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 370/85-28 concerning a feedwater isolation due to high-steam generator level. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

JBD/jgm

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator  
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